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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,871	01/15/2002	Kenneth A. Ostrom	PD-99W192	5473
7590	04/04/2003			
Leonard A. Alkov Raytheon Company P.O. Box 902 (E1/E150) El Segundo, CA 90245-0902			EXAMINER WAMSLEY, PATRICK G	
			ART UNIT 2819	PAPER NUMBER
			DATE MAILED: 04/04/2003	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,871	Applicant(s) Ostrom et al
	Examiner Patrick Wamsley	Art Unit 2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____	6) <input type="checkbox"/> Other: _____

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DETAILED ACTION

Receipt is acknowledged of an amendment, filed on 02/04/2003.

Drawings

1. Figures 3A-8B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. The present invention appears only in Figure 9. See M.P.E.P. § 608.02(g).

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art, hereafter APA, in view of U.S. Patent 4,187,466 to Kasson et al, hereafter Kasson.

When applicant states that something is prior art, it is taken as being available as prior art against the claims. Admitted prior art can be used in obviousness rejections. *In re Nomiya*, 509 F.2d 566 (C.C.P.A. 1975). See M.P.E.P. 2129.

APA provides a calibration method comprising the steps of applying an input signal to an analog to digital converter, hereafter ADC; determining at least one error value; and using that value for each stage for compensation.

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APA provides an ADC comprising a cascade [Page 4, line 2] of N stages; an ADC analog input port; an ADC digital output port; a calibration circuit; and an error compensation circuit.

Unlike claims 1, 9, and 13, APA does not teach application of a signal having a symmetric or uniform probability density. In contrast, Kasson injects a controlled signal in the form of a symmetric triangle wave. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have applied Kasson's teaching to APA. The rationale is as follows: one of ordinary skill in the art would have been motivated to use a symmetric triangle wave to reduce channel crosstalk and quantizing error noise, as suggested by Kasson on col. 3.

For claims 2, 9, and 13, APA has fine, intermediate, and coarse ADC stages.

For claims 3 and 13, APA examines statistics of bit transitions. For claims 4 and 10, APA computes probability density functions [Page 5, line 3].

For claim 5, APA determines deviation from an ideal [Page 5, line 19] transfer function, thereby correcting gain and offset errors. For claim 6, APA uses this deviation to determine error values.

For claims 7 and 11, APA adds error values to the analog input.

For claims 8 and 12, APA adds error values to a reference analog input.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 4,352,160 to Frech et al uses a triangle waveform when testing an ADC.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick G. Wamsley whose telephone number is (703) 305-3504. Send facsimiles to (703) 308-6251.

Patrick G. Wamsley
Patrick G. Wamsley

March 28, 2003